CLAIMS

1. A power module, comprising:

a module housing;

a set of DC terminals accessible from an exterior of the module housing;

at least three pairs of AC terminals accessible from the exterior of the module housing; and

an inverter circuit contained within the module housing, the inverter circuit configurable to selectively switch between at least three output states and electrically coupled between the set of DC terminals and at least one of the pairs of AC terminals.

2. The power module of claim 1, further comprising a set of control terminals accessible from the exterior of the module housing and electrically coupled to the inverter circuit.

3. The power module of claim 1, wherein the inverter circuit comprises at least three pairs of output nodes each electrically coupled to a respective one of the pairs of AC terminals.

4. A power module, comprising:

a housing;

an inverter, the inverter comprising:

a first node for electrically coupling to a first supply voltage;

a second node;

a first transistor electrically coupled between the first node and the second node, the first transistor comprising a control terminal for electrically coupling to a first control signal;

a first diode electrically coupled in anti-parallel across the first transistor;

a third node for providing an output;

a second transistor electrically coupled between the second node and the third node, the second transistor comprising a control terminal for electrically coupling to a second control signal;

a second diode electrically coupled in anti-parallel across the second transistor;

a fourth node;

a third transistor electrically coupled between the third node and the fourth node, the third transistor comprising a control terminal for electrically coupling to a third control signal;

a third diode electrically coupled in anti-parallel across the third transistor;

a fifth node for electrically coupling to a second supply voltage;

a fourth transistor electrically coupled between the fourth node and the fifth node, the fourth transistor comprising a control terminal for electrically coupling to a fourth control signal;

a fourth diode electrically coupled in anti-parallel across the fourth transistor;

a sixth node for providing an output;

a fifth diode electrically coupled between the second node and the sixth node; and

a sixth diode electrically coupled between the sixth node and the fourth node;

a first DC terminal accessible from an exterior of the housing and electrically coupled to the first node;

a second DC terminal accessible from the exterior of the housing and electrically coupled to the fifth node;

a first output terminal accessible from the exterior of the housing and electrically coupled to the third node; and

a second output terminal accessible from the exterior of the housing and electrically coupled to the sixth node.

5. The power module of claim 4, further comprising a control-signal bus accessible from the exterior of the housing and coupled to the control terminal of the first transistor.

6. The power module of claim 4, further comprising:

third, fourth, fifth and sixth output terminals accessible from the exterior of the housing.

7. A power module, comprising:

an inverter, comprising at least three phase circuits, each of the phase circuits comprising:

a first node for electrically coupling to a first supply voltage;

a second node;

a first transistor electrically coupled between the first node and the second node, the first transistor comprising a control terminal for electrically coupling to a first control signal;

a first diode electrically coupled in anti-parallel across the first transistor;

a third node for providing a phase output;

a second transistor electrically coupled between the second node and the third node, the second transistor comprising a control terminal for electrically coupling to a second control signal;

a second diode electrically coupled in anti-parallel across the second transistor;

a fourth node;

a third transistor electrically coupled between the third node and the fourth node, the third transistor comprising a control terminal for electrically coupling to a third control signal;

a third diode electrically coupled in anti-parallel across the third transistor;

a fifth node for electrically coupling to a second supply voltage;

a fourth transistor electrically coupled between the fourth node and the fifth node, the fourth transistor comprising a control terminal for electrically coupling to a fourth control signal;

a fourth diode electrically coupled in anti-parallel across the fourth transistor;

a sixth node for providing a neutral output;

a fifth diode electrically coupled between the second node and the sixth node; and

a sixth diode electrically coupled between the sixth node and the fourth node;

a housing;

a first DC terminal accessible from an exterior of the housing and electrically coupled to the first node of each phase circuit;

a second DC terminal accessible from the exterior of the housing and electrically coupled to the fifth node of each phase circuit;

a first AC terminal accessible from the exterior of the housing and electrically coupled to the third node of a first phase circuit;

a second AC terminal accessible from the exterior of the housing and electrically coupled to the sixth node of the first phase circuit;

a third AC terminal accessible from the exterior of the housing and electrically coupled to the third node of a second phase circuit;

a fourth AC terminal accessible from the exterior of the housing and electrically coupled to the sixth node of the second phase circuit;

a fifth AC terminal accessible from the exterior of the housing and electrically coupled to the third node of a third phase circuit; and

a sixth AC terminal accessible from the exterior of the housing and electrically coupled to the sixth node of the third phase circuit.

8. The power module of claim 7, further comprising a control-signal bus accessible from the exterior of the housing and electrically coupled to the control terminal of the first transistor of the first phase circuit.

9. The power module of claim 7, further comprising a controller for generating control signals for applying to the control terminal of the first through fourth transistors of the first phase circuit.

10. The power module of claim 7, wherein the second, fourth and sixth AC terminals are electrically coupled together.

11. A power system, comprising:

a DC power supply;

a power module, comprising:

a housing;

a pair of input terminals accessible from an exterior of the housing, the input terminals electrically coupled to the DC power supply;

a DC bus electrically coupled to the pair of input terminals;

three pairs of output terminals accessible from the exterior of the housing;

an AC bus electrically coupled to at least one of the three pairs of output terminals; and

an inverter circuit configurable to selectively operate in one of at least three output states and electrically coupled between the DC bus and the AC bus; and

a controller to generate control signals to control the inverter circuit.

12. The power system of claim 11 wherein the controller is contained within the housing of the power module.

13. The power system of claim 11, further comprising:

a load, wherein each pair of output terminals is electrically coupled to the AC bus to supply a respective phase of three-phase AC power to the load.

14. The power system of claim 11, further comprising:

a number of loads, wherein each pair of output terminals is electrically coupled to the AC bus to supply AC power to a respective one of the loads.

15. A power module, comprising:

a housing;

multi-level inverter means for selectively converting a direct current to an alternating current, the multi-level inverter means configurable to provide at least three nominal output voltage levels;

means for externally coupling a DC power source to the multi-level inverter means;

means for externally coupling the multi-level inverter means to a first, a second, and a third load.

16. The power module of claim 15 wherein the multilevel inverter means is configured to convert a direct current to an alternating current of at least three phases.

17. A method of supplying AC power to a load, comprising:

electrically coupling a DC power supply to a DC bus of a power module;

electrically coupling the DC bus to an inverter contained within the power module;

converting the DC power to AC power by selectively switching the inverter between at least three nominal output voltage levels;

electrically coupling the inverter to an AC bus of the power module; and

electrically coupling the AC bus to at least two exterior terminals of the power module.

18. The method of claim 17 wherein converting the DC power to AC power comprises generating at least three alternating currents and wherein electrically coupling the AC bus to at least two exterior terminals of the power module comprises coupling the AC bus to at least six exterior terminals of the power module.

19. The method of claim 17 wherein converting the DC power to AC power comprises generating first, second and third phases of an alternating current.